Macintosh SCSI Drive Secrets Revealed

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Microsoft Enhances Windows

Hypertext For MSDOS Computers

Build Your Own Hackintosh Computer
(Part II)

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ATARI ST

GFA BASIC Rebooted: A Look At Several New Helps

by Sally Nagy with Frank Nagy

GFA BASIC Training: Reboot Camp

Time to re-load that GFA BASIC Language disk filed away in your dusty disk archives. Just because it wasn't easy to use before doesn't mean you can't learn it now. There are a variety of new helps out for GFA. *GFA BASIC Training* is a new book to guide ST users.

This book helped me get a running re-start with the most powerful and versatile version of BASIC for the ST. *GFA BASIC* also distributed by Michtorn is required. *GFA BASIC Training* was Beta tested by would-be computer programmers as young as 10 years old.

Program development is handled step by step with various commands and functions coming into practical application. Enough are presented to provide a solid foundation of programming skill to build upon.

Much like a beginning music book teaches enough notes to play a couple of simple tunes, this books starts off with enough to get your feet wet with some easy programs.

Create a picture adding animation and sound. Write a player piano that plays "Mary Had A Little Lamb" with a ball dancing on the piano keys. Learn how easy it is to control your mouse and re-define its shape. Falling balls are caught with an open hand moved via the mouse control. Change screen text sizes. Make random dice tosses. Form alert boxes. Create a Simon Memory game.

In a chapter on Graphics Text, learn about the Deftext command which defines the color, style, degree of rotation and the size of the text; the Graphmode command which determines the graphic mode; and the Text command which tells the computer to print a specified string on the screen at a specified place.

The following is taken from chapter 5, pages 105-108. It is included here to give the feel of how the material is presented:

"If you are using a color monitor, please make sure the screen is medium resolution for this section."

Type in the following lines:

```
Deftext 1,0,0,6
Text 300,100, "GFA"
Pause 200
```

Run this program. The first variable after the Deftext statement determines the color of the text. Try changing the Deftext statement to:

```
Deftext 0,0,0,6
```

Run the program again. You should see nothing at all on the screen, because the computer is printing "GFA" in white!

If you have a color monitor, try making these changes:

```
Deftext 2,0,0,6
Text 300,100, "GFA"
Pause 200
```

What color is the text now?

Change the color number in your listing back to 1.

The second variable after the Deftext command tells the computer what style of text you want displayed.

The style you have just seen (style number 0) is normal. Here are some other style numbers. Try each number as the second variable after Deftext and run the program to see the different styles.

0	NORMAL
1	BOLDFACE
2	LIGHT
4	ITALIC
8	UNDERLINED
16	OUTLINED

The style numbers can even be added together to combine styles.

For example, the statement

```
Deftext 1,12,0,6
```

will make the text both italic and underlined, because the style number for italics (4) and the style number for underlining (8) added together equal 12.

Try combining different text styles by adding their style numbers together. Then replace the second variable in the Deftext command with your combined style number and Run the new program.

The third variable represents the angle of rotation of the text. To see what that means, change your program as follows:

```
Deftext 1,0,900,6
Text 300,100, "GFA"
Pause 200
```

Run this version of the program. What happens to the text?

Replace the third variable after the Deftext statement with the other values for rotation listed next and run the program to see how the text display is changed each time a new value is used with Deftext.

The text is rotated around the point defined by your Text statement. Only four values for rotation are possible:

0	NORMAL
900	90 degrees
1800	180 degrees (upside down)
2700	270 degrees

Figure 5-1 Rotated Text
(diagram not shown in this article)

The last variable after the Deftext command tells the computer how many pixels high the text should be.

The most successful text sizes are 4 (very small), 6, 13, and 32 (enlarged).

Experiment with each of these numbers in the Deftext statement in your program."

Only one new aspect of programming is ever handled at a time, allowing easy integration of the material. The book builds chapter upon chapter with applied understandings. Even the novice who follows the work plan laid out by the book will have a fully developed program when he is through.

Self-tests are provided at the end of each chapter. Completing these encourage hands-on understanding of independent programming skills and give debugging experience. For example, the Graphics Text self-test asks, "What does the first variable after Deftext tell the computer?" (The answer is, "It changes the color.") After looking at a short program listing, more questions are asked: "What color will the text be in this listing? How many pixels high will the letters be? What style of text will be printed?" and so on. But to find the answers, you will have to refer to the text. The Self Tests don't list their answers anywhere. Most books like this include a crib sheet. Only a few will be able to identify their errors and correct them rather than continue in confusion.

I did find this book very helpful explaining many commands and functions. Working through the examples greatly expanded my GFA BASIC programming experience.

I learned the GET/PUT and SGET/SPUT graphic commands used to display all or a portion of the screen and got a handle on how to animate programs.

I really disliked how the return key was indicated as an arrow, especially when that's all there is on the line. (On top of this, an editing error made some of these arrows upside down question marks.) Mistakes like these present only confusion for the young programmer.

A serious error occurs on page 52, the Self Test for Chapter 2. In the program DAYS.BAS, the corrected version of the program should list all the information in a column rather than one long line statement.

In Appendix A, the Quick Reference to Commands and Functions left blanks for the reader to fill in. Again a reference like this would be better if it left nothing to the imagination or possible error of the novice.

All considered, the book presents 259 pages chock full of useful information.

I Beta tested this book without the advantage of the disk now sold separately. I had some problems keying in some of the examples. These turned out to be all my own typing errors. So, if you are like me I recommend buying the disk (GFA BASIC Training Reboot Camp Program Disk, which is described next) with the programs found in the book. This disk provides quick relief for you programmers with tired fingers, along with some bonus programs. These help further facilitate your understanding of programming and provide assistance in creating your own programs.

GFA BASIC Training Reboot Camp Program Disk

Other than covering programs listed in the book, this disk has these extras:

MONOPIC.BAS, LORESPIC.PAS, READXYM.BAS and READXYC.BAS are programs which will enable use of Degas and Neochrome pictures in your programs. MONOPIC.BAS loads high resolution Degas into your monochrome programs and LORESPIC.BAS loads Degas or Neochrome into low resolution. These programs also check the screen resolution and end the program when the screen is in the wrong resolution. Whatever the current color palette when the program ends, the original colors are restored. They display a picture. Use READXYM.BAS for high resolution Degas pictures and use READXYC.BAS for low resolution Degas or Neo pictures to determine screen coordinates in your pictures. Just click on the mouse on the screen after the picture is displayed and the X and Y coordinates are shown.

COLORCHT.BAS and COLORCHT.PRG show the difference between the color numbers used in the Setcolor command and the color numbers used in other graphics commands such as Color, Deffill, and Deftext.

COLORAID.PRG is a color palette source code generator. The program can design a color palette, allowing a choice of the exact amount of red, green, and blue for each color number. This palette can be merged into another program.

GUESSLET.BAS, a simple word game where you guess the letters, shows how the MID$ command finds a particular letter within a word. This program uses a variety of commands dealing with user input from the keyboard.

JOYSTICK.BAS helps interpret input from the two joystick ports. Port 0, the port normally used by the mouse, and Port 1.

GFASOUND.PRG is a low resolution program containing three subprograms related to programming the Sound command. Not-So-Simple-Simon is a game which helps you become acquainted with the note and octave variables. Sound's Exciting allows experimentation with the variables in the Wave command. Music Maker will help you create an .LST file of a short song ready to be merged with your other creations.

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ST-Talk, Talk, Talk

by D. F. Scott

It was John S. DeMar of Quantum Microsystems, Inc., who helped me conceive the idea of writing entire articles comprised of other people's words. By now, DeMar should be familiar to regular readers of the ST section of *Computer Shopper*, having participated in two ST Control Panel segments, as well as one overview of his DeskCart accessory cartridge. He's rendered many quotable "gems," among them, "I like the name HyperCard because it's mostly hype."

My first phone conversations with John were formal interviews, for which I had planned all my questions beforehand and John would deliver polite, cordial answers. Then we would digress into more pertinent topics for about an hour, emerging from under the facades of "reporter" and "interviewee." It just so happened I liked what John said during his tangential flights of computorial wisdom better than his responses to my comparatively mundane questions. So in my first interview with John DeMar last year for another magazine (which, incidentally, concerned ST-Talk Professional), I ran John's words verbatim.

I later met John DeMar in person at the Chicago CES in June of 1987. There, he admitted that after reading my first rendition of "The Best of DeMar," he was tempted to rename his product "ST Talk, Talk, Talk." Over a year has passed, during which John and I have done a considerable lot of talking, but ST-Talk Professional—QMI's long-awaited telecom control program—has yet to make a sound, let alone an appearance, on software store shelves. Buyers had begun to wonder whether the project was all talk.

Having been personally involved with the product's development, I can tell you the ST-Talk Professional project has been a tremendous workload for just one primary author, John DeMar. During the last year, the "AutoPilot" built-in control system—which started out as a concept for automatic command entry—has burgeoned into a full interpretive language, complete with loops, heirarchical branches, subroutines, array variables, and string constructs. At last count, AutoPilot recognized 93 exclusive keywords and error-checked for each one—most general-purpose interpreters handle less. The capture buffer editor now operates ten separate buffers, and includes features such as word wrap and global block search-and-replace—features generally found in a word processor. Over 200K of code now comprises the main body of the program.

What A Difference A Year Makes

In mid-1987, John DeMar decided to compose a program for people who intend to dedicate their computers almost entirely to telecommunications. Interlink may be nice for the occasional teleconference or download; but ST-Talk Pro would be for the person whose business depends on information retrieval. In its present incarnation, the program can best be described as an automated information retrieval terminal, interpreter, and application shell. A person whose entire computing life is spent on-line can, with an adequate amount of free RAM, use ST-Talk Pro in place of the GEM Desktop, and be able to run other programs and perform system functions without leaving the Talk shell.

Here is how the Talk environment is set up: The main operating screen—a desktop unto itself—contains a row of icons down the right side which pertain to telecom functions and peripherals. As the open file drawer on the GEM Desktop refers to a physical or virtual file storage device, the modem icon in Talk refers to RS232 operational parameters; and the disk icons with up and down arrows refer to upload and download procedures, respectively.

Within the single GEM window is a full terminal screen with selectable character resolution. The standard host telecom service sends data over the phone line, assuming the receiver terminal has an 80-column by 24-line screen. The ST's regular text screen is based on a DEC VT-52 model, with 80x24 character space already allocated; but the GEM menu bar and window frame controls necessary for operation in the familiar ST style subtract from this space. The solution to this dilemma adopted by the current champion ST telecom program, Flash, was to have GEM controls accessible through a separate screen from the terminal screen, addressed by pressing the right mouse button. The terminal screen is thus shown uncluttered, with a single information line on row 25.

Although this solution has proved not only adequate but popular, ST-Talk Pro's method is more drastic but certainly more preferable. In order to display all available characters on the terminal screen, GEM's screen drivers are ignored completely, in favor of custom screen drivers written entirely in assembly language by John DeMar. Using a 7-bit wide by 7-bit long standard font, instead of the 8x8 font used by TOS, all 80x24 characters can fit into the terminal window, while still leaving room for the GEM menu bar and icons. GEM's display speed within a window has normally been too slow to display 4800-baud output; Talk's custom screen should prove fast enough at 9600-baud.

On top of that, since GEM was overruled anyway, the Talk driver could make use of multiple sizes of characters, thus making possible an optional 140x24 character resolution (140x48 in monochrome) as well as full VT-100 emulation. Switchable character fonts and translation tables make ATASCII emulation possible for communication with Atari 8-bit systems; and pixel-addressed graphics within the terminal screen open up channels for full VT-220 "turtle" graphics and VIDTEX bit-image graphics as well. Talk is prepared to translate the data transmission protocols used by major businesses; those it doesn't currently recognize can be entered later into its built-in emulation table.

Author John DeMar stated, in another of his many lengthy phone interviews, "One of the major pieces of code in [Talk] is the custom font driver. That alone is about 64K of assembly language. There's eight separate fonts for different modes of the VT100, graphics character sets, things like that. There's the 80-column 7-bit font and the 140-column 5-bit one, in both monochrome and color, plus the code for text output to the screen."

There may not be many people who will require 140-column VT-100 emulation, but there will be some; and for them, a home/office terminal program for their PCs does not—and probably cannot—exist. Talk will make it possible for students, for instance, whose school's computer requires a screen longer than 80 characters or an emulation mode other than DEC, to use that system at home from their STs.

Flying on AutoPilot

Perhaps more impressive than the terminal emulation capability of ST-Talk Professional is its "AutoPilot" interpretive language, which can instruct the terminal controller to operate automatically, or even unattended. Long-time readers of mine will remember it was none other than I who once vowed woe to all terminal programs which purported to do several non-terminal operations along with—or instead of—being a terminal (remember the famous "floor wax/dessert topping" analogy?). One could easily write a "Wumpus" or "Star Trek" game in AutoPilot. Since one could also just as easily write a small BBS control system, I may have to eat my words.

Here's how an automated terminal control program in AutoPilot might be written: An array variable—say trigger[7]—is set to contain a series of seven text strings. These strings can be prompt terms generally sent by the host system—such as "CHOICE>"—which precede a pause for user input. An AutoPilot keyword can set up the terminal so that it waits for the appearance of all seven of these prompts, in this manner:

```
action = wait for 30 seconds for trigger
```

If one of the strings in the trigger array should be received over a 30-second interval, the array numeral of the matching string will be retained in the variable action (note that variables can be of multiple-character length). The words **for** and **seconds** in the above example are "dummy" words; we could just as easily have said action = wait 30 trigger. The inclusion of these dummy terms makes the command much more legible, like a true English scripting language. And John thought HyperCard was hype!

After thirty seconds, the program can skip down to this line cluster:

```
if action = 6
   goto scram
endif
```

Goto scram points to a program label __scram, which could contain a routine for readying the contents of a capture buffer and saving it to disk before exiting the main system. A routine might also chain control to another AutoPilot program; or it could even run an external .GEM, .TOS, or .TTP program, with Talk acting as a shell. After the external program quits, Talk would resume.

Besides the inclusion of programmable GEM alert boxes with radio buttons, AutoPilot also includes a very powerful and complex menu keyword, which works like this:

Three arrays of equal dimensions are allocated at the start of the AutoPilot program. One, called messages, contains a list of descriptions of possible choices—for instance, "D) Show Directory" or "T) Show VT-100 dancing Turkey." Another array, called keys, contains single characters such as "d" and "t" which correspond to these selections. The third, called labels, contains the actual AutoPilot line labels which will be branched to when a menu selection is made. For example, "gobble" in this array points to a line label __gobble which is selected when the user presses a "t."

Each array having been filled with meaningful values, the magic keyword can now be invoked:

```
menu 0 keys labels messages
```

The Talk user will see a preformatted menu of the options in the messages array, shown directly on the terminal screen (device 0). A corresponding key for each option is set, and program execution waits until one of these keys is pressed, forcing a branch to the corresponding label from the labels array.

Now here's the good part: Suppose we were to replace the "0" in the above example with a "1," thereby switching the output device for the menu statement from the screen to the modem. The text within the messages array would then be sent over the line, and then echoed to the Talk terminal screen. Talk will then wait for a menu selection to come over the phone line from a remote user. Menu is the backbone statement for Talk as a host—not just a terminal—control program, as well as the link for other terminals to access or control the ST from a remote location. The user on the remote end (device 1) would see the same menu selections she would see from the home end (device 0). Any resultant messages can be sent over the line to the remote end using the "printd 1" or "printm" statement.

Since many command shells accept external arguments, a remote user can pass an MSDOS-style command (for instance, copy P:*.* C:) to a command shell such as QMI's Do-it! through the shell of ST-Talk Pro. So although Talk doesn't come pre-configured for remote

continued on page 500

ATARI

Applying The Atari

by Jeff Brenner

As the summer draws to a close, we'll do some catching up on reader mail. In the months ahead we'll be taking an in-depth look at many of the new 8-bit releases that have appeared this year, and hopefully we'll see a sizable amount of new software for the 8-bits as the holiday season approaches.

Products From Irata Verlag

The Six System Box from Irata Verlag is a new product for XL/XE computer owners who use multiple operating systems or who intend to acquire additional operating systems. Previously, many hesitated to install new operating chips due to fears of possible incompatibility with current or future software. The Six System Box allows you to have a choice among up to six different XL/XE operating systems at the flip of a switch. Six LED lamps on the front of the box indicate which operating system is current in use. Conceivably, the Six System Box could be used to instantly switch your XL/XE into an older 800 without the need for a translator disk, or into a faster math processor for spreadsheet programs. Irata Verlag also offers some of their own chips, including the High Chip XL ($70.00), for owners of Happy drives. The High Chip XL lets the computer run slightly faster and provides a special menu for shutting off, slowing down or slow-loading with the Happy on. The High Chip XE ($120.00) is an operating system that sets up a RAM disk in the computer as soon as the computer is turned on. Other products available from Irata Verlag include The Disk Manager, a program to organize your disks; The Super Turbo Interface, a printer interface for the 8-bit with an 8K buffer that allows the addition of two drives (such as IBM or ST 3.5 or IBM 5.25) and a booster system that allows speeds of 150,000 baud: Super Label 2, a printing program that lets you create labels with your Print Shop icons; and Video Meister, a utility program for Computereyes owners. For more information on these and other 8-bit products, contact: Irata Verlag, 1272B Potter Drive, Colorado Springs, CO 80909.

The Atari Computer Division

The question of Atari's commitment to 8-bit users has surfaced again as Atari announced the creation of two corporate divisions; Atari Computer and Atari Entertainment Electronics. The Atari Computer division has outlined its plans for the ST, Mega and Abaq computers, while its position on the XE computers and XE game machine has not been defined. Some have questioned whether comments on the 8-bit line made early in the year by Neil Harris, director of product marketing, still applied, now that two divisions have evolved. Neil Harris had stated that Atari was fully interested in selling 8-bit machines and pointed to the compatible XE game machine as proof of Atari's commitment to the 8-bit community. Comments and observations from readers are welcome.

Reader Mail

Dear Jeff:

Regarding questions concerning using the Atari with a Commodore monitor: I don't think there is any way to get decent resolution on a Commodore monitor using the composite video input. For an improved picture, take the Atari video cable and unsolder pin 4 (composite video). Resolder the wire back to pin 5 (composite chroma). Now connect the monitor as follows:

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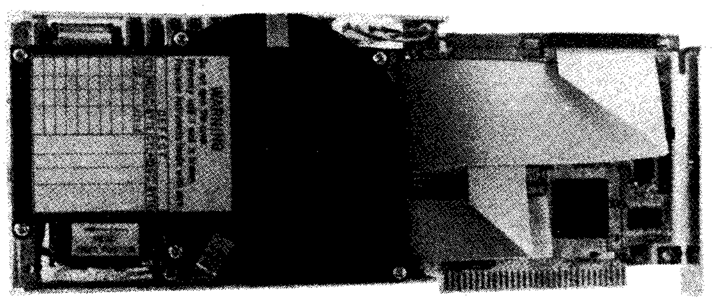

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ADAM

The ADAM Forum

by Paul Pappas

Digital Data Drives and the MegaCopy Interface

One of the most innovative features of the ADAM is of all things, the Digital Data or Tape Drives. Costing much less than disk drives, they provide the same random access directory structure (albeit at a slower but acceptable speed). Using a Digital Data Pack (called "DDP") is very much like using the ADAM 5¼ inch disk drive, with one major difference.

In order to use a 5¼ inch (called "floppy") disk, it must first undergo a process called "formatting." This prepares it for use by the computer, a process analogous to a painter applying a coat of white paint to his canvas, before he begins to paint. Formatting is done by the user with software supplied with the disk drive. Because the user does the formatting, he may purchase floppy disks from the dealer with the best price.

Like floppy disks, DDP's must be formatted before use, and therein lies the rub. Coleco decided not to supply the software (or even the circuitry in the ADAM) to format DDP's, opting instead to sell the DDP's preformatted. The upshot of this punitive marketing decision meant Coleco (and Loran, who manufactured the DDP's for Coleco) controlled the DDP market. You bought DDP's from Coleco or authorized dealers at whatever inflated price they wished, or you did without.

If DDP's were a unique shape or size we might have been at Coleco's mercy forever. Fortunately, Coleco used the industry standard compact cassette for its DDP's. A DDP is a standard audio cassette with minor modifications to the cassette shell. The only thing keeping DDP's out of cassette recorders or audio tapes out of Digital Data Drives are a few small positioning holes in the shell, a problem easily remedied by a few strokes of a drill. These simple modifications made it possible to copy the tape format to a C-60 audio tape, effectively converting it to an inexpensive DDP, or so most people thought. What they had was an analog copy of digital information, a copy whose quality varied widely depending on the dubbing device used. Since most ADAM owners use DDP's as their sole method of file storage, this solution was not practical. A method was needed to use the ADAM tape drive to format a drilled audio cassette, thereby creating an exact duplicate of the DDP format. As Paul Harvey might say; "And now, the rest of the story."

The MegaCopy Interface, developed by Syd Carter of TRISYD Video Games [26 Florence Cres., Toronto, Ontario, M6N 4E4, Canada, (416) 769-6446] electronically links Data Drive 1 to Data Drive 2, allowing ADAM to act as a high speed DDP duplicating/formatting machine. In only six minutes, the contents of a DDP in drive 1 are copied to a drilled audio tape in drive 2, con-

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ATARI

Applying The Atari

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XE DIN PLUG Commodore monitor
1 Composite Luminance---->2 Luma (yellow)
3 Audio------------------------->1 Audio 2 (white)
5 Composite Chroma---------->3 Chroma (red)

Set the video switch to "Commodore." You can hook up the monitor this way without changing the wire from pin 4 to pin 5, but it won't be as clear.

Much of the smear is caused by the way Lumina and Chroma are combined using two 75 ohm resistors to generate the Composite Video. Removing one of these resistors from your XL/XE will sharpen the display (and you'll lose the Composite Video).

An excellent article covering this and more mods and tweaking is Benjamin L. Poehland's "Super Video for the Atari 800XL," *Computer Smyth*, February 1987. Most of the article applies to the XE also. The magazine is no longer printed, but the publisher has another magazine: *Speaker Builder*, Box 494, Peterborough, NH 03458. I don't know if back issues are available.

Jim W. Prickett
El Centro, California

Thanks for the tip. Atari owners using a Commodore monitor should try your suggestion if resolution is poor. But if you're satisfied with the current picture on your monitor, your best bet would be to leave things the way they are, since everybody seems to have his own perception of what constitutes a

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TIMEX/SINCLAIR

Sinclair Survival

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variable as "NUMONE" and "NUMTWO" (for NUMBER ONE and NUMBER TWO). This makes it easier for the programmer to go back and make changes in the program later.

The entry of a string (information which is to be considered as non-numeric by the computer) gets entered in essentially the same manner. The difference is that a dollar sign ($) is placed at the end of the variable identifier. The identifier must start with a letter (A-Z) and may be followed by a sequence of letters, numbers, underscores (no spaces are allowed) and ended with the $. (In earlier versions of Sinclair BASIC, the string identifier could only be a single letter followed by $, thus limiting the number of string variables to 26. SuperBASIC allows for a practically unlimited number of string variables.)

Values can be assigned to numeric and/or string variables from within the program, or by user entry—usually from the keyboard. Examples of both types of assignment are shown in the following example.

```
  10 REMark First we will ask the user for a name
  20 INPUT "Enter a name ";NAME$
  30 REMark It does not matter if you use upper or
lower case
  40 REMark Now we will assign a string value from
within the program
  50 LET PHRASE1$="will be "
  55 LET PHRASE2$="years old."
  60 REMark Next we will ask for the person's cur-
rent age
  70 INPUT "Enter the age of the person you have
entered ";age
  80 REMark Now we will add 1 to the current age
  90 REMark We will assign this to a new numeric
variable
  100 LET newage=age+1
  110 REMark Now we will clear the screen and print
some information
  120 CLS
  130 PRINT NAME$;
  140 PRINT " is now ";
  150 PRINT age;
  160 PRINT PHRASE2$
  170 PRINT
  180 PRINT
  190 PRINT "Next birthday ";
  200 PRINT NAME$;
  210 PRINT " will be ";
  220 PRINT newage;
  230 PRINT PHRASE2$
```

Unlike most BASICs, Sinclair SuperBASIC is quite forgiving. You will notice that when assigning a string variable from within the program (such as in line 50) the proper form is to place the string within quotation marks. SuperBASIC, however, will recognize that a string variable has been called for (due to the $ which is the last character of the variable identifier), and will accept it in that format even if the quotation marks are omitted. Other BASICs would give you a syntax error message of some sort if you did this.

A third method of placing values into variables is by use of the READ-DATA-RESTORE keywords. This is a procedure whereby the data accompanies the program as DATA statements, and gets entered into the variables without any keyboard input. This would be used when you need to enter information which is predetermined and does not change from user to user, but which would take time to enter by hand. An example of this would be the number of days in each month. This is information which does not change (except for every fourth February—a fact which we will ignore for the purpose of this example).

```
  10 REMark First we will clear the screen
  15 REMark and move the pointer to the first DATA
statement
  20 CLS : RESTORE
  30 READ MONTH$,DAYS
  40 PRINT MONTH$;" has ";DAYS;" days."
  50 GO TO 30
  60 DATA "January",31,"February",28,"March",31,
"April",30
  70 DATA "May",31,"June",30,"July",31,"August",
31,"September",30
  80 DATA "October",31,"November",30,"December"
,31
```

(Note: This program will end with an OUT OF DATA message. Can you think of any way to avoid that from happening? The answer will become apparent next month.)

In line 20, after we clear the screen with the CLS command, we use the SuperBASIC command, RESTORE, to set the pointer at the beginning of the first DATA line—in this case it is line 60. There will be times when writing your own programs that you will want to make sure that the pointer is at some other point than the beginning of the first DATA line, but rather at the beginning of some other line starting with the DATA keyword. This can be accomplished by typing RESTORE followed by the line number. If, for example, you wanted to start your list with May rather than January, the command at the beginning of this program would read

```
  20 CLS : RESTORE 70
```

You may notice that we have used three DATA lines to store the information. Each piece of information could have been in an individual line if we would have wanted to, it makes no difference to SuperBASIC. All it knows how to do is to place the (imaginary) pointer at the first piece of information and move one position after each READ command is executed. Once this pointer reaches the end of a DATA line and then encounters still another READ statement, it will go to the next DATA line, regardless of whether it is the very next line, or a line dozens (or more) lines away. It will continue upon its merry way until either a RESTORE command is issued, or it runs out of DATA—as in our previous program.

The READ command is identical to the INPUT command for all practical purposes, except that instead of requesting information from a source outside of the program itself (usually the keyboard), it takes the information from a specified place in the program. As with the INPUT command, the type of data should match the appropriate format. String data should be enclosed within quotation marks to make sure that the correct data gets assigned to the proper variable.

Next month we will take all of the aspects of SuperBASIC which we have covered up to this point, and with the addition of one more capability of the language, put together a true (and useful) QL program. For those of you who do not have a QL, a little modification will allow it to be structured for the ZX-81 (T/S 1000, T/S 1500) or T/S 2068, or for any other computer using BASIC as its programming language for that matter.

Speaking of the ZX-81, remember the days when the only way to get a Sinclair computer was to buy a ZX-81 (or ZX-80) kit and assemble it yourself? Well, it has been a long time since those kits have been available, but Zebra Systems (78-06 Jamaica Avenue; Woodhaven, NY 11421; (718) 296-2385), the dean of American Sinclair dealers, is making those kits available once again. These have been obtained from the Spanish market and came with Spanish manuals. Zebra Systems has replaced the Spanish documentation with English docs, although the Spanish manuals are available separately. Mention that you read about it here in *Computer Shopper*.

More Timex Sinclair on page 516

TEXAS INSTRUMENTS

TI Forum

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COPY, DEL(ete), and MOVE—and extends the RES(equence) command, so that the XB programmer can work with the manipulation of groups of program lines easily. Cursor movement is also extended (e.g., to allow use of up and down arrows). In addition, the TRACE statement has been modified to permit sending of output to printer rather than to screen. In short, this cartridge is especially helpful for XB programmers, even if they're writing standard TI XB programs.

The Triton SEB is available directly from Triton, P.O. Box 8123, San Francisco, CA 94128 (phone: 800/227-6900) for about $60 (it is also available, I understand, for $52.50 from the L.A. 99ers Computer Group, P.O. Box 67A79, Los Angeles, CA 90067, a source for other hardware/software products as well, in addition to publishing TopIcs, a fine user group newsletter). Of the two cartridges, my opinion is that the graphics in the Mechatronics XBII + is definitely superior, although the Triton SEB has a slight edge in other areas, especially for programmers. I own both and recommend both with enthusiasm.

Although the preceding work with console and cassette, memory expansion and disk system are recommended or required for SXB, DEP, String Master, and XXB (all of which use the standard TI XB module).

Jim Hollender's SXB is the granddaddy of extended Extended BASICs, but has not yet been superseded for certain applications. It contains more than 100 assembly language routines for database manipulation, string and string array processing, integer handling (packing for efficient use of memory), and video display (including windows, although 40-column mode is not supported). It is available at $49.95 from Tenex, P.O. Box 6578, South Bend, IN 46660 (phone: 800/348-2778). Related materials (including a SXBrief newsletter and additional assembly routines) can be purchased directly from J K & H Software, 2820 S. Abington St., Arlington, VA 22206 (phone: 703/820-4131). Incidentally, the term SXB is trademarked by J K & H, and this product should not be confused with

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ATARI

Applying The Atari

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good picture. For those readers interested in Mr. Poehland's article, finding a reprint will be a challenge, but I will try to contact the author in the hopes that he may comment in a future column.

The RAMcharger

The recent questions and answers on the RAMcharger have generated much more interest than I had anticipated, and readers have been good enough to supply additional information, clarify points, and provide comments and opinions based on their personal experiences. Here's one last letter on the topic, written by a respondent to the original reader request:

Dear Jeff:

I'm writing again because of the many differing opinions on the RAMcharger, CP/M and Happy 1050 issues. Phil Beck's letter was the most accurate, and he doesn't even own a RAMcharger. To answer some of the questions recently raised:

Yes, CP/M 2.X is the standard.

Yes, disk formats are a barrier, and no it is not a problem when downloading files from a BBS or other computer.

Yes, ADM-3A is the de facto standard. The RAMcharger CP/M emulates the ADM-3A in eight column mode, and the ADM-31 in forty column mode. Professional CP/M programs offer install or configuration options to match your terminal or do a custom installation.

Kenneth Rogers said the Happy 7.1 for enhanced 1050 drives only displays text files. This is a misconception because Happy 7.1 software does not display IBM files. It copies them back and forth between Atari and MSDOS disks. It doesn't care what kind of file it is, but it does provide the option to translate the non-compatible carriage returns in data files. What Happy is trying to say is that your Atari won't run an IBM program just because you copy it to an Atari disk. I have seen an MSDOS compatibility option advertised for the ATR-8000, but have never heard of anyone using it, or how well it works.

John Kolak
Ft. Polk, Louisiana

O.K. We'll call your letter the second to last on the topic, and we'll hear from an ATR-8000 MSDOS user in a future issue.

Newsletter Contest

Due to the erratic summer schedules of many user group newsletters, a new winner will be selected in the October issue. This should give a chance for the later newsletters to catch up with the early ones, and thereby allow me to judge the same month of each newsletter. And instead of a single winner, I will likely name a group of winners so that recognition can be given to a wider number of quality newsletters. This is in response to suggestions from newsletter editors.

"Why select a winner at all?" some have asked. In addition to hopefully providing additional incentive to Atari users groups to make their newsletters the envy of their communities (putting Commodore and Apple newsletters to shame), those Atari users living in small towns where 8-bit support is limited often turn to the best newsletters of more distant user's groups for their information. The following letter from the managing editor of the *Michigan Atari Magazine* provides a good example:

Dear Jeff:

We thank you for naming the *Michigan Atari Magazine* as newsletter of the month. We feel honored by your kind praise. By printing our address you have allowed us to help Atari owners who otherwise were frustrated and felt very isolated. One case in point is a woman in South Dakota who we are corresponding with and helping to get more from her XE. She felt very upset because she couldn't get support and didn't know where to turn. Because you listed our newsletter, she contacted us and was able to get a good DOS plus access to public domain software she didn't know was available. Thank you for your help and support.

Pattie Snyder-Rayl
Ann Arbor, Michigan

Your group should also be praised for its willingness and eagerness to provide support to those outside the community, as well as for your newsletter.

Next Month

We'll take a look at additions you can purchase for your Video Title Shop and Gauntlet programs, more reader mail and Atari news.

Reader's questions, comments and contributions are welcome. Address all correspondence to Jeff Brenner, "Applying The Atari, 9/88" c/o *Computer Shopper*, P.O. Box F, Titusville, FL 32781. ●

TANDY

CoCo Column

continued from page 266

ing an additional disk drive should be applicable in a majority of cases. However, I do recognize there may be differences between your specific drive and the one described in this tutorial. If you'll write and specifically describe the circuit board of your disk drive, we'll try to get you up and running.

Letters From Readers

Q. From Bonnie Baird of Rangley, Colorado.

I'm a novice computer user and need advice and information concerning our Color Computer 3. Specifically, I need to know what (if any) specifications there are for a monitor, disk drive kit, cassette, and printer. I also need advice on choosing programs other than Tandy programs and an explanation of why my disk drive will (or won't) run a program purchased elsewhere. Also, our CoCo 3 is currently hooked up to a television and doesn't seem to accept a program in hi-res mode. Can you tell me why?

A. The Color Computer 3 has three different video outputs to choose from. The first, and apparently what you are using, is an RF output to a television. A drawback of this choice is the lack of clarity with high resolution (80 column) text screens. I believe this is what your problem is. Other choices are composite and RGB outputs. The composite output (available through the RCA-type female jacks in the back) are better than the RF-output and used with both monochrome and color monitors. The best resolution is available through the RGB output with the use of a Radio Shack CM-8 or any other compatible RGB Analog monitor.

I always suggest Radio Shack products for complete compatibility with the Color Computer 3, however, there are several third party vendors offering fine products which, in a majority of cases, will work as well. I would suggest if you plan to purchase any hardware to always ask questions and find out how compatible it really is.

The vast majority of programs produced for the Color Computer 1 and 2 will work with the CoCo 3. Problems arise when the developer of a program made an undocumented call to a machine language routine in the computer's Read-Only-Memory. Particular problems arise with the CoCo 3 when the program makes calls to the area which contains the new Super Extended Basic ROM. Quite a few programs have patches available on bulletin boards or national electronic services, however, some programs will not work on the CoCo 3. As with hardware, ask the company you plan to purchase from if the software is compatible with the Color Computer 3.

Q. From Charles M. Kay of Cheraw, S.C.

I am in dire need of a Data Sheet Instruction Set for the 68B09E CPU. I wrote to Tandy's Customer Mail Center, but got no response. Also, do you know if the bare PC Board for the RAM upgrade of a Color Computer 3 is available, and if so where? In closing, I wish to express my satisfaction with your magazine. I made a telephone purchase from one of your advertisers and received the goods in less than one week!

A. Glad to hear that you enjoy the CoCo Column, and that one of our advertisers treated you well. Most of them strive to do exactly that. You should be able to get the Data Sheet on the 68B09E directly from Motorola, the manufacturer. I'm not sure on the price, but their address is: Motorola, 3501 Ed Bluestein Blvd., Austin, Texas 78721. It is 36 pages in length, and the publication number is DS9846R2.

Folks like CRC Computers in Montreal, Quebec and Owl-Ware in Mertztown, PA offer a bare board for the 512K upgrade. Prices seem to average around the $25-$30 range.

As always, I invite you to send in your comments, suggestions, and questions. Send your correspondence to The CoCo Column, *Computer Shopper*, 5211 S. Washington Ave., Titusville, Florida 32780. ●

Commodore Offers Educators' Special On Amiga 500

Commodore Business Machines, Inc. has announced a $600 savings on its powerful Amiga 500 personal computer as part of a bundled package. This special offer is available until June 30 to all certified teachers, educators and schools nationwide. There is no limit on the number of systmes that can be purchased.

The special Amiga 500 package is offered at $999.80, a $600 savings on the regular suggested retail price of $1599.80. The bundle includes the Amiga 500 CPU with 512 KB of RAM built-in, an internal disk drive, keyboard and mouse. Also included is: an RGB color monitor, model 1084; an external 3½-inch floppy disk drive, model A1010; and the A501 512K RAM expansion board.

"Once students and teachers experience all the capabilities of a fully configured Amiga 500 system, they want it. We're offering this special price so they can have it," said David Archambault, Commodore's director of educational marketing."We are very committed to supporting the education market and this special offer is just part of our overall plan. We will also conduct national advertising and direct mail campaigns as well as exhibiting at more than a dozen key education trade shows."

There are more than 800 software titles available for the Amiga 500. These programs provide students with the tools to study math and science through interactive educational programs, to compose music, enhance videos and produce colorful newsletters—all right in the classroom.

The Amiga 500 education package, with a 90-day warranty, is available at authorized education Amiga dealers nationwide.

For further information contact Commodore Business Machines, 1200 Wilson Drive, West Chester, PA 19380; 215-431-9100. ●

GFA BASIC

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SPECCOMM.BAS demonstrates the difference in the time it takes *GFA BASIC* to execute certain specific commands versus the time needed for general commands to perform the same functions. While this program works best in low resolution, it will run any resolution.

These programming helps hold the elements of most GFA programming. Using this disk in conjunction with the *GFA BASIC Training Reboot Camp* book or separately will go a long way to ready the beginner for more advanced work.

GFA BASIC Reference Card

Michtron's GFA BASIC "Slick Reference Card" is a smartly designed fold-out guide for GFA programmers.

Folded, the 3¾x8½" card easily slips into any *GFA BASIC* book.

The card accordions to 22". Both sides pack details on proper syntax and required parameters for every command.

Brush up on disk and graphics commands, directory and mouse functions, machine level commands, GFA BASIC and compiler error messages, VT 52 terminal escape codes, types of variables, constants, operators, and more.

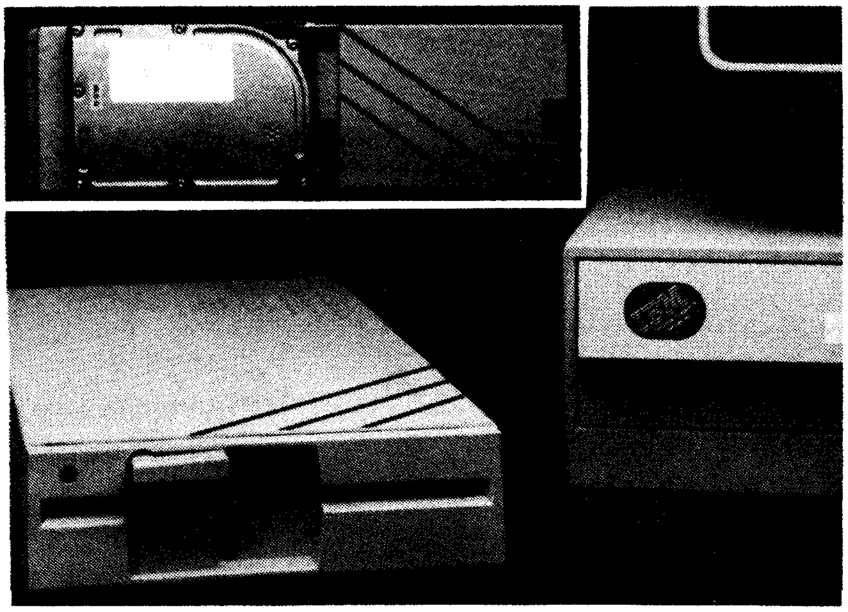
This card is organized in a way people can readily use. For most people, it's easier to think in terms of subject and find that alphabetically with commands as subheadings. In this way, this resource has it over the GFA manual which lists by commands alone.

See how the card displays the following commands alphabetically under the Mouse Functions section:

Mouse Functions

DEFMOUSE a$	Defines a mouse form.	
DEFMOUSE n	Selects a predefined mouse form.	
HIDEM	Hide mouse.	
MOUSE x,y,k	Returns the mouse position (x,y) and status of the mouse buttons (k).	
MOUSEK	Returns status of mouse buttons.	
	0	None pressed
	1	Left button down
	2	Right button down
	3	Both down
MOUSEX	Returns horizontal coordinate of the mouse pointer.	
MOUSEY	Returns vertical coordinate of the mouse pointer.	
SHOWM	Show mouse.	

You will want to keep this invaluable programming aid handy as you program in GFA BASIC.



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Graph Paper

A tremendous aid to plotting pictures on a computer screen.

These full-size reproductions of the four types of graph paper shown in a reduced mode in Appendix B of the *GFA BASIC Training* book. (High and medium resolution PRINT AT locations, and graph sheets for low, medium and high resolutions.)

Michtron Inc., 576 Telegraph, Pontiac, MI 48053 sells these for the following prices:

GFA BASIC Interpreter, $59.95; *GFA BASIC Training Reboot Camp*, $19.95; Reboot Camp Program Disk, $12.95; Reference Card, $3.95; Reboot Camp Disk and Card, $14.95; Graph Paper, $2.95. Please include $3.00 for shipping and handling.

GFA BASIC: Quick Program Reference Guide For The Atari ST

Preferred by many because of its power, accuracy and easy extensions for ST applications, GFA BASIC Language is enjoyed by ST users worldwide. The language was first developed in Duesseldorf, West Germany, so it is no wonder that the *GFA Quick Reference Guide* was also written in West Germany. Its two authors are intimately familiar with *GFA BASIC.* This handbook summarizes hundreds of commands and functions comprising the GFA BASIC language.

The publishers claim to give "instant information at your fingertips" and they mostly live up to it. It's nice to see this mass of information all in one tidy package. It compiles like materials found in the *GFA BASIC Language Manual* and the *GFA BASIC Book*, an intermediate programming tutorial published by Michtron. But this is a reference work for those with general knowledge of the Atari ST and some hands on experience with GFA BASIC. It will probably take an advanced or at least an intermediate level programmer to fully appreciate it.

Three indices deliver aid to those searching for information on commands, their uses and parameters. It's all there, AES, BIOS, COMMANDS, FUNCTIONS, GEMDOS, VDISYS and XBIOS. Brief descriptions follow each listed command with further explanation of its proper syntax. The book detailed more specifics on commands and functions than the *GFA BASIC Language Manual.* The information is also described in a clear and fresh way.

A brief look at what some of this means:

AES, short for Application Environment Services, is responsible for graphic input functions like the Mouse-Menu-System, BIOS (Basic Input/Output System), and XBIOS (Extended Basic Input/Output System) are interfaces used to control disk access by sectors and for accessing other peripherals (i.e., printers and modems). GEMDOS (GEM Disk Operating System) is the actual operating system. VDISYS or VDI (Virtual Device Interface) routines support graphics and text output and settings.

Let's look at an example. In the command BOX, we find:

```
BOX, PBOX [B, PB] Display a rectangle.
```

Under the box, you would then find the next few lines:

```
BOX x__left,y__top,x__right,y__bottom
(empty rectangle)
PBOX x__left,y__top,x__right,y__bottom
(filled rectangle)
```

It displays a rectangle, either empty or filled in with a pattern. The command must be given in two coordinate pairs (x__left/y__top and x__right/y__bottom). These are the opposite diagonal corners of the rectangle.

While in the *GFA BASIC Manual* the same command would be described as follows:

```
Graphics Command Box
How: BOX x0,y0,x1,y1
Abbr.: B
Example:
BOX 100,100,400,300
BOX 500,300,700,100
```

Purpose: Draws a rectangle with diagonally opposite corners at (x0,y0)

continued on page 500

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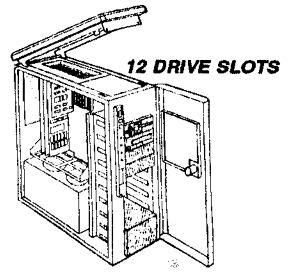

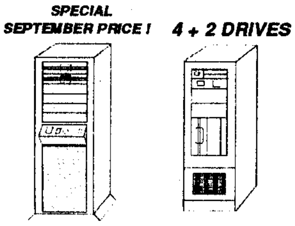

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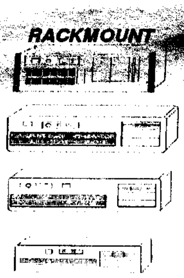

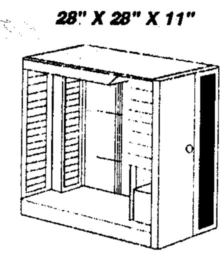

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ST-Talk, Talk
continued from page 250

ST control from online, AutoPilot does leave the door open for ambitious high-level language programmers to construct remote control applications.

The Long, Long Road to Alpha

ST-Talk Professional began its lengthy road to maturity in 1986, when its namesake predecessor ST-Talk became one of the first working terminal programs for the ST. It was a bare-bones telecom program, with only VT-52 and partial ATASCII emulation, and XMODEM downloading protocol as its major inherent features. At $17.95 list, though, no one complained.

John DeMar tells us the original ST-Talk was compiled using "the Dragon Group's 4xForth—I was the first person to buy one. They have serial number 1; number 2 they gave to Atari just for demos at the early shows. I bought serial number 3. I had C compilers at that time, but I couldn't get anything done fast enough. Megamax has a much faster C compiler (now) than the Alcyon, by order of magnitude. I played around with Forth, and got up and running fairly quickly; but there were no GEM hooks in that. They had been promised for a while, and they never delivered until well after I was using Megamax.

"It didn't take me very long to write the original ST-Talk, because I had been playing with telecommunications stuff on different computers for years before that. Actually, ST-Talk came about from having written previously four terminal programs for different computers, including the 8-bit Atari and a DEC VAX."

Before founding QMI, DeMar was a programmer for General Electric, where "we used Apple IIs as terminals at one time. The terminal software on that had its own custom screen drivers at that time, to get more columns on the screen. They used to make a proportional-spaced font, and columns wouldn't line up. Statistically, though, you could get 80 columns on a 40-column screen."

Once a serious C compiler became available for the ST, John started the task of writing a serious telecom program in something closer to his native language. "It's done in Megamax C. If I compiled it with a large-model C compiler, it would be maybe 40K larger. It just barely squeaks in on a 512K machine by the time you include the capture buffers. Most of the people who are going to be sophisticated enough to want to use some of these features with which they'd have to worry about memory, are going to have a one-meg machine."

Since '87, QMI made many projected release dates for Talk which had to be retracted later. It is by no means a criticism to say that one man is naturally slower than a corporation or a committee. Personally, I'm thankful *Computer Shopper* articles are written the old-fashioned way—by hand—otherwise regardless of quality, we individuals might all be dismissed as too slow for the job. A conglomerate organization can process an adequate program through the use of an assembly line; one programmer can slowly but masterfully craft a work of logical art. The product I'd choose to use on an everyday basis would be the product of the latter originator.

Besides, states John DeMar, the final product should be as close to perfect as possible. "When I buy software," he says, "I hate to join the 'Version of the Week Club.' I never know what version—say, 'I've got version 1.71463A. I didn't know version 1.71463B was out!' I don't like doing that to people. I think I'd rather have them wait instead of sending in five dollars, ten dollars and a disk every couple of weeks—and pay for the development of the program."

"Every other competitor to ST-Talk was written primarily by one guy, but marketed by bigger companies. I handle all aspects of my business. Programming is one thing that I do, but not the only thing that I do. As far as getting things done in a timely manner, you have to crawl before you walk and walk before

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GFA BASIC
continued from page 498

and (x1,y1) in the color set by the color command.

Explanation: The origin of the coordinates is the top left-hand corner of the screen. The given coordinates do not have to be in the screen area (0-639,0-399 in high resolution mode) in which case only part of the rectangle will appear on the screen (see second example).

(See also DEFLINE)

The Graphic Command PBOX is found on another page:

```
Graphic Command PBOX
How: PBOX x0,y0,x1,y1
Abbr.: PB
See: BOX
```

GFA Quick Reference consistantly gives commands in an easy to understand format. Given the situation, more detailed or concise explanation is given.

A few mistakes were found. In the GFA Editor section on page 6 the book mislists <Shift + F7> as the means to scroll to the top of the screen page when it should read only <F7> to pageup. Page 31 has the filled circle command described with the P left off (Pcircle). Again, it is a little disconcerting to be reading along and suddenly find yourself thrust into haupt Deutche (High German) for a' few words. Although this happens only once, do you have any idea what "der linken, oberen Ecke" and "der rechten, unteren Ecke" mean?

The rewards of a wealth of usable information are well worth putting up with these few minor mistakes and idiosyncracies.

I'm keeping this book right by my computer for quick reference along with *GFA BASIC Manual* and the *GFA BASIC Book*. *GFA BASIC Quick Program Reference Guide* for the Atari ST is distributed by Abacus for $14.95. Their address is Abacus, 5370 52nd St. SE, Grand Rapids, MI 49508. ●

ST-Talk, Talk continued from page 500

you run. Too many companies throw tons of money into starting up, and then disappear just as quickly."

The projected list price for Talk is still $29.95. Why so low for such a big chunk of code? "On the ST, there seems to be two ways of selling software: You can put the price up high enough where, even if you don't sell that many copies—for whatever reason, perhaps based on the price being too high—you'll still make money. The other way is to make it low enough where they can't refuse to buy it, where it's not a major investment. If the program's worth more than you paid for it, you'd feel bad stealing it. We're writing a hundred-page manual, providing all the updates, just to try to keep piracy down. In general, it's my fault, because I started out with the original ST-Talk for $17.95. We sold something like 18,000 copies."

After Procrastination Comes Prediction

During one of my long talks with John DeMar (which constitutes the backbone of my long-distance phone bill) we discussed the ongoing 80x86 vs. 680x0 microprocessor superiority battle. It's John's belief, as he so stated, that "all these wars between '286, '386, 68020s, are going to be fairly short-lived. The winner is going to be somebody's RISC-based processor that will emulate all the rest of them."

"When I say 'legally,' I mean you're going to be able to buy an emulator from a third party—essentially like pc-ditto but even more at the hardware level. The processors will be capable of emulating anything, any instruction set that you wanted to describe to it. At that point, we'll have the basis, the hardware platform, to emulate the rest of these processors. The reason for doing that is, you can't sell a new computer unless it runs some existing software base—even though it's better, greater, or the best thing ever. You're still not going to sell it if there isn't anything that will run on it.

"People are locking themselves into one thing or another," continues DeMar, "with either an Intel or a Motorola-based computer. It doesn't have to be that way. With an Inmos T800, you could teach it macros that could simulate other opcodes on a limited basis. The microcoded processor is one of the older kinds of concepts; they had those at Xerox ten years ago. Their little 8-bit graphics system essentially had the resolution of an ST, and they had 256K and Xerox's proprietary microcoded microprocessor in it. If they needed some fast routines for display stuff, they taught new instruction sets right inside the processor to do that stuff. That never picked up, basically because of the political reasons of the big companies like IBM picking up the Intel stuff. It's a good example of a product idea which was too much ahead of its time to be appreciated; but I think eventually microcoded processors with emulation capabilities of other processors will pick up. There's no reason why that's not any more expensive than anything else; the goal is just getting the acceptance that that's the way to go.

"That word 'RISC' scares people; it sounds really obscure, off-the-wall, and only for high-end Sun workstations. Somebody needs to come up with a better way to describe what RISC is, and what it's capable of doing. Maybe Motorola can pick up on that and mass-market the 88000 instruction set. Essentially, instead of giving somebody a database that acts as an address book, it gives them a programmable database like dBMan where they can do an address book but they could do a whole bunch of other things—it's a programmable processor chip. That's what you'll see more of in the future.

"All these fights about Intel/Motorola are going to be old news. Someday I hope the masses realize that being compatible with MSDOS is like making sure everyone drives a Model T forever."

He may have a point; on the other hand, every new product of technological advancement we are lucky enough to acquire is a virtual future antique (or "VFA"). Considerable riches have been made in this industry by finding new ways to make the old technology last longer. The true advancements, however, are those products which thoroughly and unquestionably replace their predecessors. If ST-Talk Professional can achieve that goal, then it will have been worth the tremendous personal effort on John DeMar's part, and the long wait on ours.

That's Outlook for this month. I'll see you on C*SIX, on Delphi, and maybe on ST-Talk Pro. ●

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